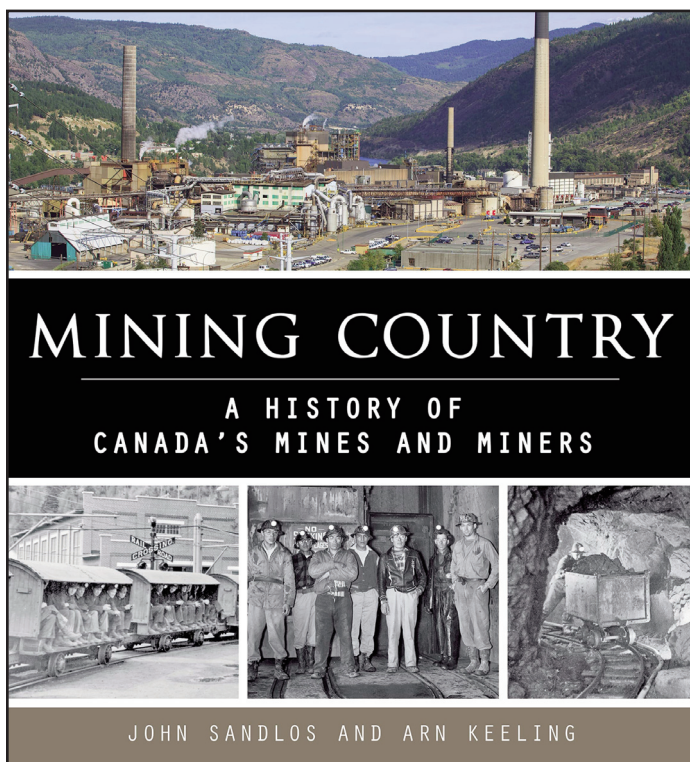


REVIEW



MINING COUNTRY — A History of Canada's Mines and Miners

John Sandlos and Arn Keeling

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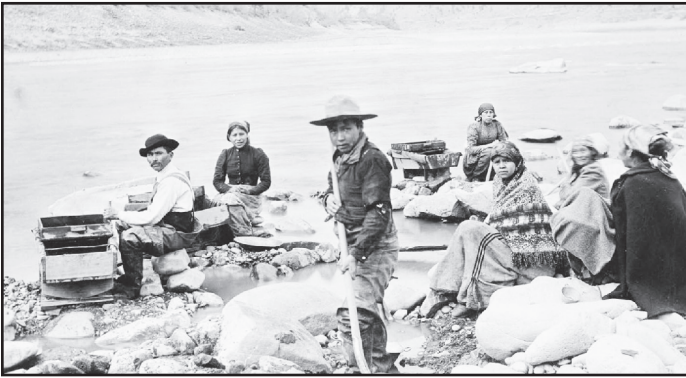
John Sandlos and Arn Keeling are history and geography professors respectively at Memorial University of Newfoundland in St. John's who have a background in the study of abandoned mines, including their environmental legacies and their impact on Indigenous communities, in Northern Canada. In the introduction to the book the authors say

"we explore both sides of the historical debate over Canadian mining history without embracing either extreme. Our work acknowledges that mineral products are undoubtedly central to the economies and lifestyles of our contemporary world, and mining holds a prominent — if curiously neglected — place in the history of Canadian colonization and development. At the same time, we acknowledge that these benefits (if indeed they are seen as such) have also come with great costs: the dispossession of Indigenous groups from their land base, the maiming and death of mine labourers and the degradation of the environment".

The introduction leads a reader to expect a generally biased account of Mining in Canada as it emphasizes the negatives associated with mining; however once one gets into the main parts of the book the presentation is relatively even and gives a fairly complete coverage of Canada's mining history through time and across the country. The authors use five key themes to underpin their story, 1) relationships with Indigenous Peoples; 2) experiences of workers; 3) mining towns; 4) destructive environmental aspects; and 5) post-mining environmental legacies.

Chapter 1, entitled "Deep Roots", starts the discussion of mining history in Canada with its Indigenous Peoples who, as far back as 10,000 years ago, used locally-derived rocks and minerals for weapons (i.e. quartzite from Manitoulin Island, and chert from Ramah Bay in Labrador), cooking utensils (soapstone from Fleur de Lys, Newfoundland), and native copper from the Lake Superior region, the Alaska-Yukon region, and the Coppermine River area (Nunavut), for weapons, ornaments, tools and trading goods. The Maritime Archaic people mined and traded distinctive Ramah chert extensively in the Atlantic region with implements reportedly found as far south as the Carolinas. This chapter also documents the hostilities that arose between Indigenous Peoples and European explorers as they travelled into parts of Canada (especially in the north) that were previously unexplored by settlers. The first example given concerns the Frobisher expeditions to find the Northwest Passage in the eastern Arctic, which resulted in attacks on Inuit camps by the Europeans and retaliatory attacks by the Inuit. Such conflict resulted in many deaths and capture of Inuit "slaves". Later, the Hearne expeditions to the Kugluktuk and Coppermine River areas, in search of the copper reported from the area, culminated in a massacre of the Kugluktukmiut – the "Copper Inuit" – at Bloody Falls on the Coppermine River in 1771.

Chapters 2 to 4 cover mining across Canada from the early days, mainly in eastern Canada, to the post-World War Two

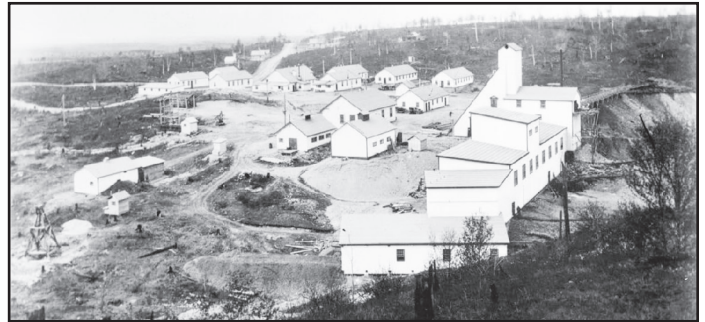


A First Nations family placer mining with sluice boxes and gold pans at the confluence of the Thompson and Fraser rivers near Lytton, BC, ca. 1890. Gold mining and trade by Indigenous Peoples preceded the Fraser River gold rush of 1858. Photo credit: British Columbia Archives (D-06815).

mining and manufacturing boom which extended across the country and resulted in large-scale movements of people to work in the mines and manufacturing businesses. These chapters lead into and describe what the authors term “Canada’s Century”.

Chapter 2, entitled “Mining from Colony to Nation” summarizes mineral development from Nova Scotia coal at the end of the 18th century into the 19th century to the Klondike gold rush at the end of the 19th century. The development of coal deposits in Nova Scotia resulted in significant technological and sociological advances. The first steam engine in Nova Scotia was installed at Albion Mines in the Pictou coal fields and shortly after, in 1829, the first steam railway in North America was established to move this coal to tidewater. In 1879, in response to a wage cut at the Springhill Mine, the Provincial Miners Association, the first provincial labour union, was established by Robert Drummond. This entity was successful in improving mine safety but had less success in collective bargaining or improving labour standards for the miners. This chapter also encompasses early exploration and development efforts in the “settled” areas of Ontario and the push into the more isolated homelands of the Anishinaabe-Ojibway and Cree nations in northwestern Ontario, which led to disputes between Indigenous Peoples and non-Indigenous prospectors and labourers. These disputes resulted (in 1850), in the signing of the Robinson Treaties with the First Nations of the Upper Great Lakes, giving them reserve lands, cash payments and annuities in return for access to thousands of square miles of territory in the Lake Superior and Lake Huron regions for exploration, development and settlement.

Chapter 3, entitled “Mining and the Industrial Boom” describes the growth of manufacturing, mining and cities throughout Canada from the late 1800s to the early 1940s. The search for coal, gold, silver and base-metal deposits was driven by trans-continental railways that moved westward into British Columbia and further north, across Canada, to areas that had not been settled. One of the first prospecting rushes into northern Ontario was driven by discoveries of copper and nickel in the Sudbury area in 1883 by Tom Flanagan, a blacksmith working on the railway, in an area where mineralization



The Falconbridge nickel mine at Sudbury, Ontario, in 1930. Falconbridge grew to become one of Canada’s biggest mineral producers with mines in Canada and eighteen other countries. Photo credit: Library and Archives Canada (PA-015636).

had been found in 1854 when a compass reacted strangely due to magnetic minerals. Later prospecting rushes were driven by the discovery of silver in Cobalt in 1903 and gold in the Timmins area in 1910, and at Kirkland Lake in 1911. These “rushes” resulted in an influx of southerners and people from all over the world seeking their fortunes, many of whom settled in these areas. This era began to change the mining industry as companies were formed to build larger and larger mines with related infrastructure such as smelters and “company towns” to house employees. This was the beginning of major companies such as International Nickel (Inco) and Falconbridge, both formed to mine the Sudbury basin nickel-copper ores, and also Noranda, founded to mine the Horne copper-gold deposit in the Rouyn area of Quebec. In western Canada, Cominco originated in the Rossland and Kootenay areas of British Columbia where the Trail smelter and the Sullivan Mine were located. The days of prospectors working their individual claims were coming to an end. The rise of such large companies, and their generally “iron-fisted” control of the labour that made the mines work, also led to unionization. Mining unions formed to advocate on behalf of labour and, in many cases, to strike for better safety and working conditions and better pay. Companies responded by doing everything that they could to break strikes using strikebreakers and “special constables” to arrest strikers, and most strikes during this period did not accomplish much for their Union members.

Chapter 4, entitled “New Frontiers and the Post-War Mining Boom” starts in the 1930’s and describes how the mining industry responded to the war effort and then took advantage of consumer and military spending after the war, especially from 1951 to 1956, to greatly increase production of most metals and minerals to meet this demand. The authors say that Canada produced 95% of the nickel, 75% of the asbestos and 40% of the aluminum required for the Allied war effort and that iron-ore production also increased tenfold during the war. Strategic metals such as magnesium, molybdenum and uranium were also being produced over the war years and some of these, especially uranium (for atomic bombs) became more important to Canada’s GDP as the war ended. Conversely, most gold mines shut down during the war because miners left to fight and governments de-emphasized gold production.

The post war period, from 1951 to 1973, was a period of rising incomes, wider home ownership and concomitant



Miners pushing an ore cart in 1930 at the Eldorado radium mine at Port Radium, located at the eastern end of Great Bear Lake in the Northwest Territories. While radium was incredibly valuable in the 1910s and 1920s for use in medical therapies, during the Second World War the Canadian government nationalized Eldorado Mining and Refining Ltd. and converted the mine to uranium production for the Manhattan Project. Photo credit: Library and Archives Canada, (C-023983).

increases in demand for consumer items, all of which required metals. Industry responded with nickel and lead production doubling, copper production tripling, zinc production increasing fourfold and a tenfold increase in iron-ore production. While production increased from existing mines, mineral exploration took advantage of new “war-related” technology such as airborne magnetic-electromagnetic surveys to locate new deposits and put new mines into production. These included the first true “northern” mines, notably the North Rankin Nickel Mine (1957) where Inuit at one point were 70% of the workforce. The large Pine Point zinc mine opened in 1964, which also provided the Inuit and other local Indigenous groups with opportunities for work but never achieved such high participation rates. These northern mines were among the first to develop “open” towns, as opposed to the closed “company” towns where the company controlled every aspect of people’s lives. World demand for increased agricultural yields to feed the increasing population resulted in the development of several potash mines in Saskatchewan from 1962 to 1970, while continued demand for housing and consumer items led to increased production of fluorspar (for aluminum production) in St. Lawrence, Newfoundland, and asbestos in the eastern townships of Quebec. This was a period of intense growth of Canada’s mining industry, but not all aspects were positive as many long-established mining districts were displaced. Declining production in southern mines such as Bell Island’s undersea iron deposits could not compete with new open-pit iron deposits in western Labrador, and underground coal mining in Nova Scotia lost ground to “strip” mines in western Canada. These times also saw rising awareness of “industrial” diseases such as silicosis, and lung cancer, including asbestosis. The underground fluorspar mines of St. Lawrence had major problems with silicosis due to “dry” drilling, where workers inhaled the rock dust. These problems were exacerbated by high levels of radon gas which is heavier than air and settled in the underground passages where it was inhaled by the workers.

The radioactivity of radon (alpha particles) led to serious health issues that are now well documented but were poorly known in those times. Radon gas levels in the St. Lawrence mines were reduced to background levels once the problem was known and ventilation in the working areas was increased.

Chapter 5, entitled “Rough Terrain”, describes the period from 1973 to 2016, essentially taking us to the present day. The 1980’s particularly were a period of change in the mining industry as there was increased recognition that “social license” is required to allow a project to move forward – i.e. the people affected by a project must have input into any mine development plans and also determine if such developments should even proceed. The Whitehorse Mining Initiative was aimed at generating a socially, economically and environmentally sustainable mining industry that remained prosperous, but was underpinned by political and Community consensus. This concept was developed by industry beginning in 1992 and recognition of its principles spread through industry. Impact and Benefit Agreements (IBAs), which quantified the projects and laid out the benefits to mainly Indigenous Peoples in the project areas, played a large role in this transition. The authors use several mine developments, especially in the north, to illustrate how the industry progressed through these years beginning in 1974 with the Nanisivik Mine on Baffin Island, which was the first mine in Canada located north of the Arctic circle. Consultation with the Inuit of the region led to a 20-25% Inuit workforce, better environmental management by the company and increased benefits for the local Inuit communities. Nanisivik was also one of the last “townsite” mines to be established in Canada, and it ended a long history of purpose-built single industry towns. When mines close, as they inevitably will, associated towns established specifically to service the mines decline or die as people leave for work elsewhere. Since the mid-1970s, mines in isolated regions of Canada generally have become fly-in and fly-out operations supported by work camps rather than by dedicated communities.

Other notable events during the period included the opening of the Rabbit Lake uranium mine, in Saskatchewan, which was discovered in 1968 and began production in 1975. This was the beginning of large-scale uranium production in the Athabasca Basin ultimately giving Canada the highest grade uranium mines in the world. The discovery of diamonds at Lac de Gras in the Northwest Territories in 1989 led to Yellowknife becoming a supply centre for exploration and development. Unfortunate tragic events, in part related to cost-cutting by companies, which led to safety issues and labour disputes, also mark this period. The purchase of the Giant Gold Mine in Yellowknife in 1990 by Royal Oak Mines resulted in an infamous and long-lived labour dispute, a union lockout, the employment of strikebreakers and ultimately led to the deaths of nine people in an underground explosion. The incident resulted in criminal charges and a murder conviction. The Westray coal mine disaster in Nova Scotia in 1992 led to the deaths of 26 men in an underground explosion related to methane, with the bodies of 11 miners never recovered.

New discoveries brought new challenges. The Voisey’s Bay nickel-copper-cobalt discovery by prospectors Al Chislett and

Chris Verbiski for Diamond Fields Resources in 1993 brought conflict with the Innu and Inuit Peoples of Labrador. In the end, however, it played a major part in the settlement of Inuit land claims and led to IBAs that benefit both Indigenous Groups. The Government of Newfoundland and Labrador also imposed conditions that led to establishment of the hydrometallurgical refinery at Long Harbour which would ultimately refine the ore. Several other important new mines developed in the 1990s including Tumbler Ridge (coal) in Alberta, Hemlo (gold) in northern Ontario and the Lac de Gras and Ekati diamond mines in the Northwest Territories.

Environmental awareness by both industry and government increased as opposition to mining by local Indigenous groups and environmental activists grew. Plans to develop uranium deposits in the Baker Lake area of Nunavut, first discovered in the 1970s, were delayed and finally rejected by the Nunavut Impact Review Board in 2015.

In the early 2000's a "commodity supercycle" increased demand for many commodities and metals were no exception. This demand resulted in increased funding for global exploration and also in Canada, long seen as one of the prime exploration areas in the world. The Canadian mineral industry, with this influx of funding, also became more global, exploring around the world. At the same time, foreign investment in Canada increased, and well-run Canadian companies also became takeover targets. Inco was acquired by the Brazilian mining giant Vale, and Falconbridge became part of Xstrata, which now itself has a new identity (Glencore). This was a time of major consolidation in the industry, which many saw as decreasing Canada's overall competitiveness.

The book concludes with two shorter sections, Chapter 6, entitled "Heritage, History and Zombie Mines" and the book's concluding chapter, entitled "The History and Future of Mining in Canada". These summarize the authors' own feelings towards Mining in Canada, repeating many of the themes that were presented and emphasized throughout the book and conclude with the following statement:

".....the history of mining in Canada and other nations suggests we are far from inhabiting a world where energy and materials can be pulled from the ground without severe deleterious impacts. From the moment that Frobisher arrived to seek gold near Baffin Island, the story of mining in Canada has been persistent growth in the amount of material that the industry digs from the ground and the unending (if at times uneven) expansion of the mineral frontier into new, often Indigenous, spaces. Canadians must at some point decide whether such endless growth of mineral extraction can be maintained much further into the future".

This book is almost a coffee table book, with numerous illustrations and photographs that capture a long and rich history, which is also interesting and informative to read. I learned things about Canada's mining history that I didn't know even though I have been involved with the industry as an explorationist for over 50 years. While not all mining in Canada has been (or could be) covered in such a book, the authors do a good job in summarizing mining over the history of Canada

from coast to coast to coast. I am concerned however by the overarching premise, as summarized in the quotes from the introduction and conclusion, that mining and mineral exploration is bad - both for the environment and for the Indigenous Peoples and others in those areas where it takes place. In its final pages it seems to imply that Canada, as a country, should consider renouncing minerals as a vital part of our economy. Given our worldwide reliance on metals and minerals to support industrial society, this seems at odds with the realities of the 21st century.

There is simply no getting around the dependence of modern societies on the use of natural resources and organizations such as the World Bank predict that increased production of many 'critical minerals' is an essential part of moving to a carbon-neutral future. Nevertheless, the challenge of extracting vital resources with minimal environmental impacts remains a daunting one, which may well define the 21st century.

Colonialism, through the movement of people, altered the 'New World' irreversibly since its beginnings in the 15th century, just as it had altered the old world of Europe and Asia over millennia. Mining was an important part of that historical reality. The events and outcomes recounted in this book are certainly not unique to Canada, and they are not things that can be changed retroactively. The development of Canada's mining industry, and its modern society in general, had a profound impact on Indigenous Peoples, as it did worldwide. It is said that ignoring the lessons of history carries the risk of repeating mistakes, but it is also said that both individuals and societies must learn from their mistakes. Like all established industries, Canada's minerals sector did not change quickly, and some changes required repeated prompts, but this book also conveys the message that it *has* changed. The best that we can do in decades to come is to ensure that Indigenous Peoples, and others in areas where we explore and mine are respected and fully consulted and ultimately become part of developments that provide tangible benefits, but also preserve the integrity of their natural environment as much as possible. Mining Country does much to illustrate the historical context of one of our most important industries, in a manner that is accessible to a wide readership.

The book includes many references, an extensive bibliography and 150 archived pictures and drawings showing mining, and the miners that carried out the work, from all regions of Canada, throughout the long history of our Industry. It is an ambitious project, and its text is clear and uncomplicated. It is well worth the time needed to read it and will amply reward the reader, even if they may not agree with all the opinions written in and between the lines.

This review has benefited greatly from an editorial review by Andy Kerr, Editor of Geoscience Canada. His assistance is gratefully acknowledged.